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Appendix X. ComField Information Management System.

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This appendix outlines the ComField information management system which is designed to give the project management a comprehensive tool for decisionmaking and to free instructors from tasks of keeping current records of every student's performance, help them plan their time more efficiently for counseling students and planning instruction, and provide them a means of perceiving a student in a broad context. The information content in the ComField Project is listed under the three categories which constitute the data plex: staff resource file, student file, and instructional systems file. Information management within the instructional program is discussed with diagrams of the instructional system, of the total instructional complex, and of the relationships between research and development, personnel, and instructional functions. Three flow charts present (1) communication and information flow to support the instructional program, (2) communication and information flow to support adaptation and supplier functions, and (3) communication and information flow to support personnel and research and development. This document and SP 002 155-SP 002 180 comprise the appendixes for the ComField Model Teacher Education Program Specifications in SP 002 154. (JS)

APPENDIX X--COMFIELD INFORMATION MANAGEMENT SYSTEM

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COMFIELD INFORMATION MANAGEMENT SYSTEM

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One of the most critical factors in the successful management of a complex structure such as the COMFIELD Model is the collection and dissemination of relevant information. A successful information system in an educational experiment would offer a number of advantages:

1. It would free instructors from tedious tasks of keeping a current record of every student's performance.

2. It could help the instructor plan his time more efficiently both in counseling students and planning instruction.

3. It could provide instructors a means of perceiving a student in a broad context.

4. It would give the project management a comprehensive tool for decision making.

Information Content Within the ComField Model

The essential information content in the ComField Project is organized into a comprehensive data plex consisting of three identifiable files. These three files are separately labeled but are logically inter-related in many lines of communications. The reader must note that these files are viewed as the minimum, intrinsic, information base of the project as the minimum data array required to support the total program. However, extrinsic files as information generated outside of the ComField domain might be accomodated into the various management systems.

Previously, the functional model of the ComField Project was presented in order to classify the necessary functions and their relationship to each other. This diagram was necessarily devoid of communication and took oriented labels. The following series of diagram is shown to illustrate two necessary supporting structures to the functional design. These are the essential communication flow and the data base that supports that flow. Once the function communicates and essential data bases are established, the problem of task assignment in the form of individuals becomes relatively straightforward.

For purposes of labeling diagrams the three files are coded D1, D2, D3 for Staff Resource File, Student File, Instructional System File respectively:

COMFIELD DATA BASE = (D1, D2, D3)
where D1, D2, D3 are itemized as follows:

D 1 - Staff Resource File

Instructional Staff

- Background
  - General education
  - Professional
  - Special instructional competencies
- COMFIELD training history
- *Instructional System Experience
  - teaching experience
  - designing experience
  - student assessment experience
- Individual & personal competencies
- Professional growth history
- Salary history

Management Staff

- Background
  - General education
  - Employment experience
  - History of Orientation to COMFIELD
- Professional Growth History
- *Special competencies re COMFIELD
- Salary history

Consultative Staff

- Background
- Client orientation
- History of COMFIELD involvement
- *Specific consultative competencies
- *Evaluation by COMFIELD specialists
- Salary history

*This portion of file builds as individuals become involved with COMFIELD during initial or operational phases.

D 2 - Student File

Personnel background
General education
Employment experience summary
Preprofessional tests and assessments
COMFIELD placement interview

* Instructional System Experience
  - entrance competence level
  - system measurement
  - individual responses & instructional made
  - evaluation by instructors
  - postsystem assignment

* Personal Growth & Development
  - evaluations of personal commitments
  - attitudinal measurement
  - sensitivity development
  - concurrent work experience

* Institutional History
  - enrollment & attendance record
  - institutional requirements record

Professional assignment & experience
  - post COMFIELD experience
  - COMFIELD reentrance history
  - post COMFIELD evaluation by individual

D 3 - Instructional System File

Instructional information

Statement of behavioral outcome
- primary objective
- secondary objective
- rationale for outcome

Content and structure of system
- knowledge prerequisite
- subject matter
- instructor & materials required
- facilities, (alternatives relative to a specific institution)

Evaluative procedures
- procedures for testing outcome
- assessment recommendations
- individual alternatives (based on interest or particular institutional offerings)

Management Data

- Cost of materials and facilities
- Cost of instructors and support personnel
- Minimal resource necessary for IS
- Optimal resource allocation in terms of student units
- Special institutional restraints

Historical information

- Number of students entering system
- Number of students with satisfactory outcome
- Comments by instructors regarding system design, evaluation techniques

Information Management Within the Instructional Program

Relationship of Instructional Cycle to System to Complex

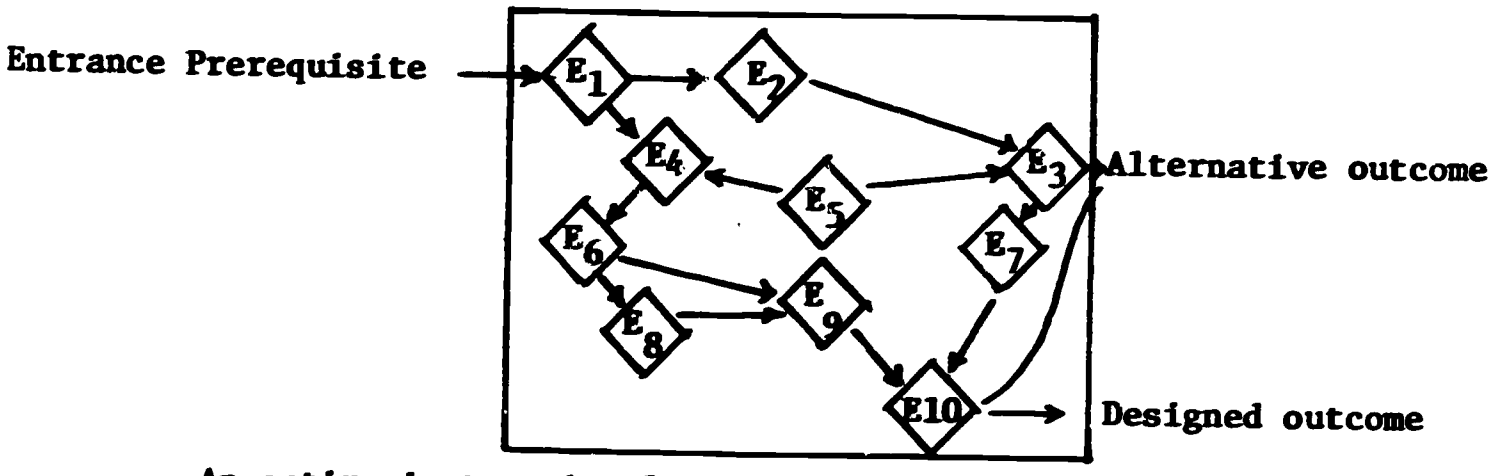
From the systems analytie point of view the instructional system requires three critical features which are prerequisites for a "systems approach" to the tasks of generating instructional managers.

1. The instructional system can be relationally ordered into identifiable elements or instructional cycles which collectively achieve a measurable result. This implies two additional characteristics upon an instructional system: the elements of the system are discrete, i.e., may be isolated from one another; and each element and the system of which it is a part is finite. This is the analytic prerequisite.

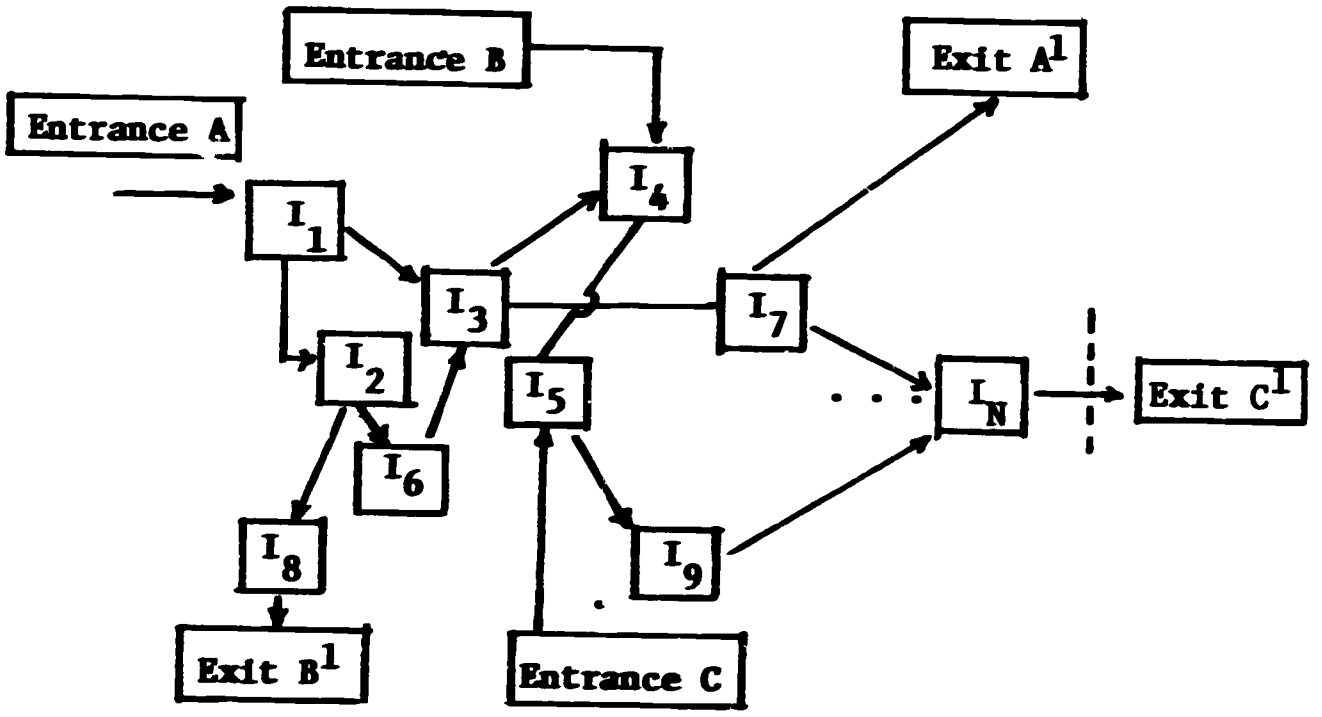
2. The instructional system has the capacity to test for termination and the number of termination points are finite. An important additional characteristic of this evaluation prerequisite is that the resultant outcome of the elements of the system tend to converge to the system outcome. In terms of instructional systems this implies that there must be an evaluative mechanism for each element, and a subsequent evaluative mechanism for the entire system.

3. The third and most difficult prerequisite is that an instructional system must be adaptable to its environment and experience either intrinsically, as a cybernetic instrument, or extrinsically as an open loop decision process involving factors outside of the system. Most systems tend to evolve from an open to a closed decision process as they move from the experimentation phase to an operational phase. In any event, the adaptability prerequisite, even if primitive, is essential.

Diagrammatically, an instructional system may be represented as follows:

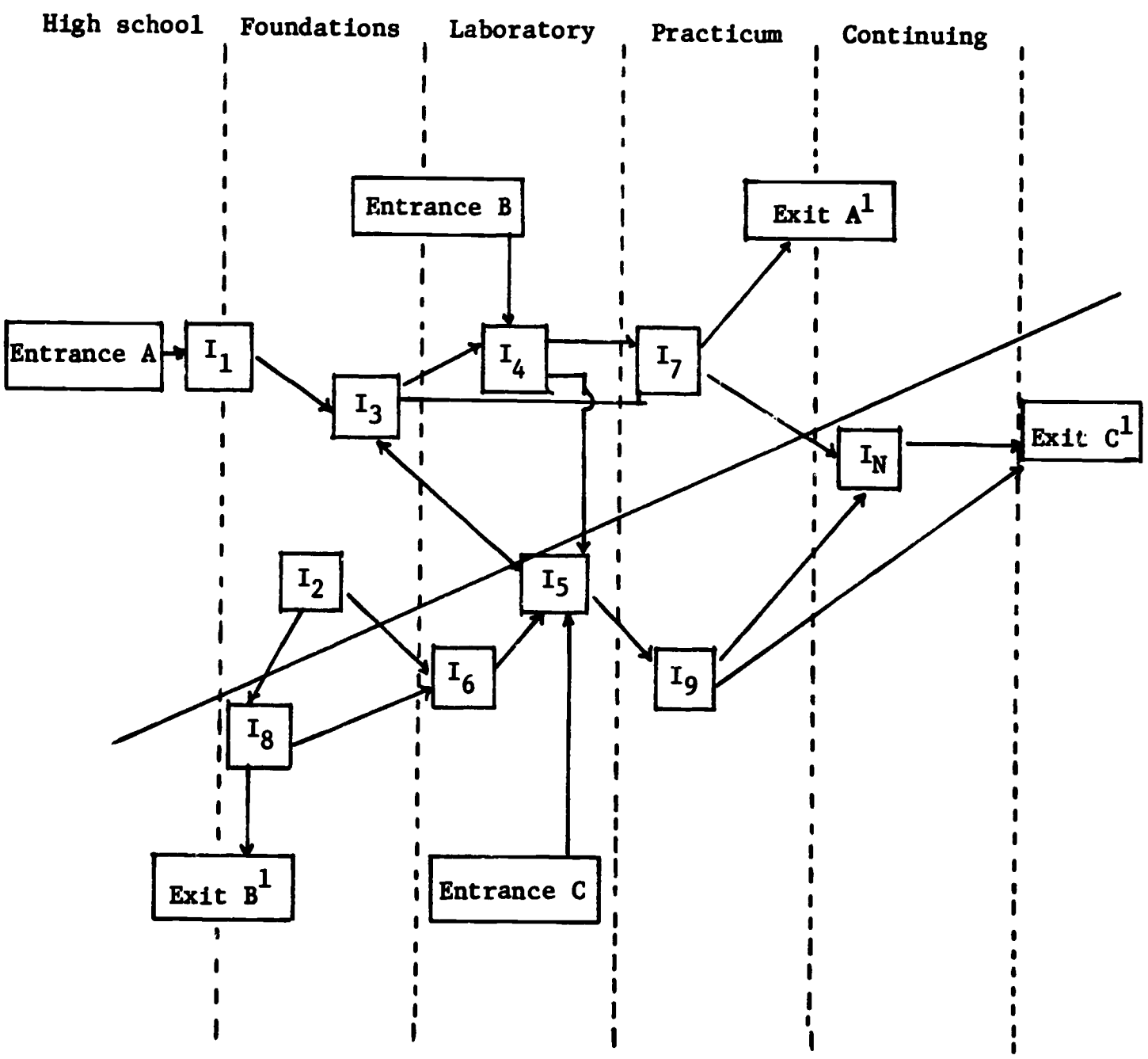


An entire instructional complex consisting of a collection of instructional systems, which may be thought of as elements in the instructional complex, would appear as follows:



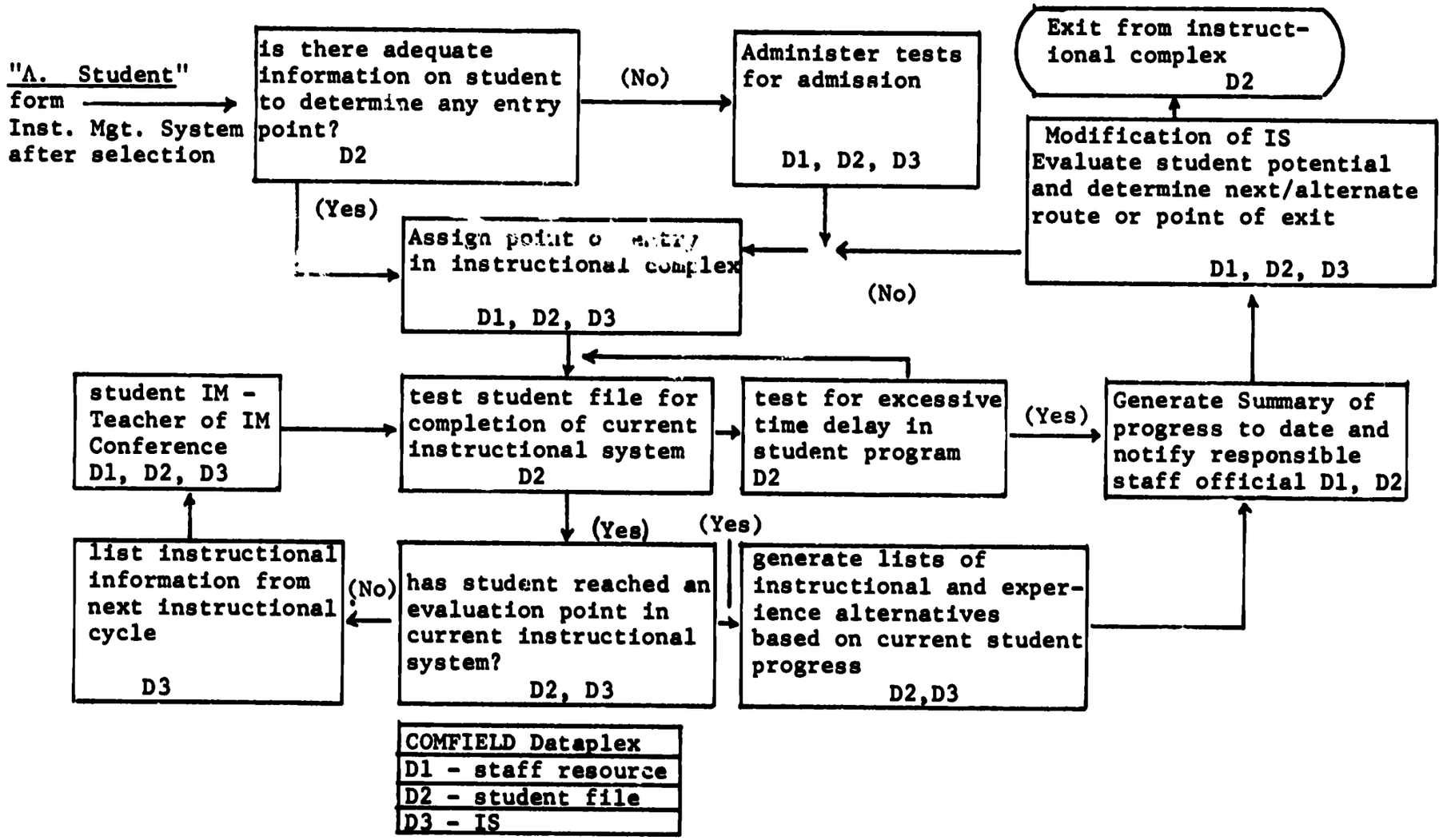
An important concept in the COMFIELD effort has been the identification of potential instructional managers at various points thereby accommodating student instructional managers at various stages of training and experience. Similarly, the identification of multiple roles to be fulfilled in addition to the instructional manager such as paraprofessionals and aides points out the desirability of designing the instructional complex with multiple exit points which neither assumes nor precludes the reentrance of an individual into the complex.

Superimposing the realities of time upon the instructional complex in addition to the open resource base in terms of institutional involvement, the model would appear as follows:

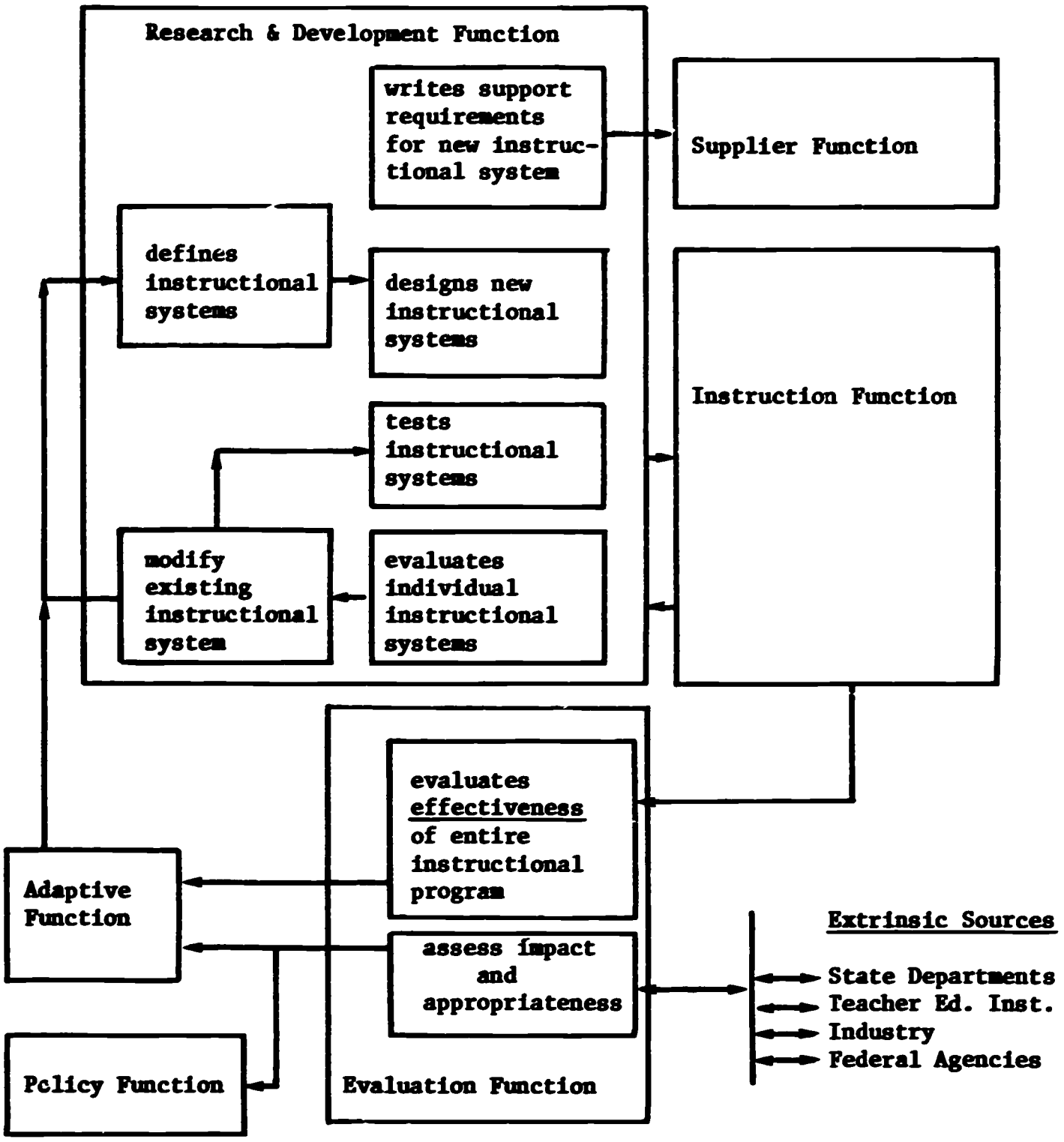


An individual student would progress through the instructional complex as shown in the following diagram. (Note that all portions of the dataplex are utilized in supporting the student.)

Communication and information flow to support the Instructional Program. Information bases are noted by D1, D2, D3.

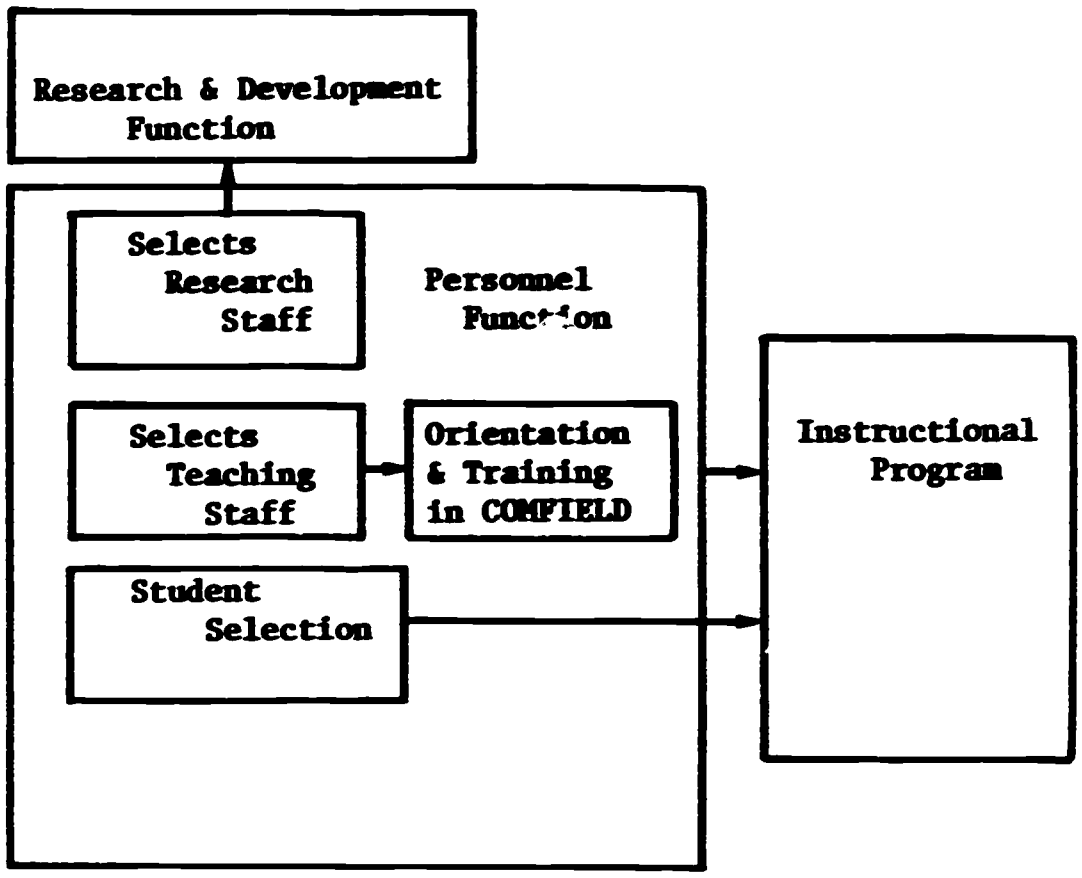


To illustrate the supportive nature of the COMFIELD Dataplex in other functions the following four diagrams are shown. Note that lines of information flow determine functional relationships in the majority of cases.


Research & Development Function
writes support requirements for new instructional system
Supplier Function
defines instructional systems
designs new instructional systems
tests instructional systems
Instruction Function
modify existing instructional system
evaluates individual instructional systems
evaluates effectiveness of entire instructional program
Adaptive Function
assess impact and appropriateness
Extrinsic Sources
State Departments
Teacher Ed. Inst.
Industry
Federal Agencies
Policy Function
Evaluation Function

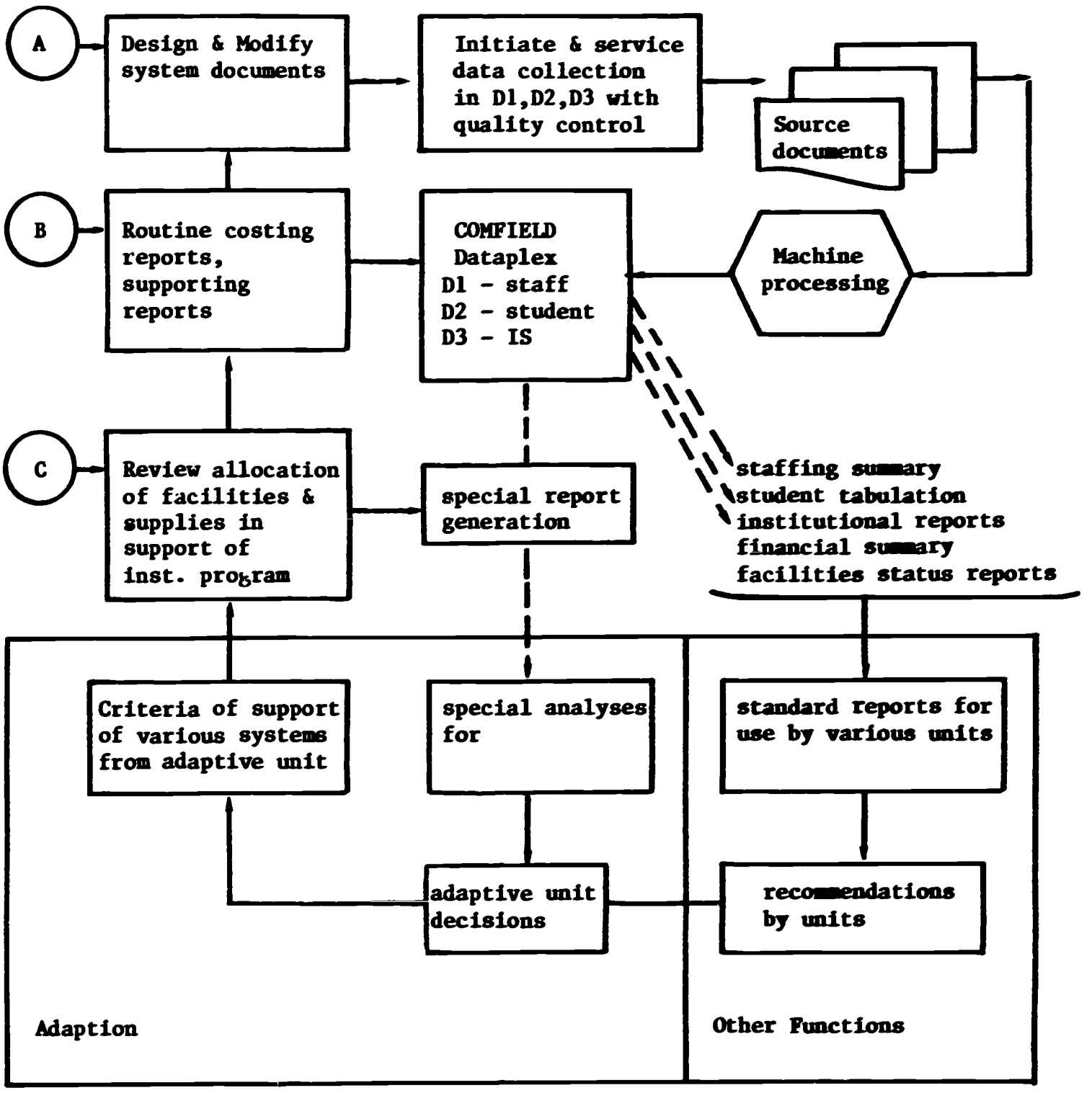
Instruction Function - carries on the ongoing instruction program of COMFIELD, i.e., the actual training of instructional managers.

Various diagrams are shown to illustrate essential relationships between these functional units.



Communication and information flow to support adaptation and supplier

functions:
A. to collect data for entire COMFIELD Project
B. perform cost analyses
C. provide & maint. supplies & facilities



Communication & information flow to support Personnel and Research and Development.

Functions: A. to design instructional systems
B. to select & train staff
C. to select students